

REMARKS

This paper is presented in response to the non-final official action of May 7, 2008, wherein (a) claims 1-30 were pending, (b) claims 19-30 were withdrawn from consideration, (c) claims 1-4, 6, 7, and 9-18 were rejected as obvious over Joo, et al., US 6,277,324 ("Joo") in view of Hoffmann, et al., US 3,897,183 ("Hoffmann") and Fayed (Roll Pressing, in Handbook of Powder Science and Technology, 2nd Ed., eds. M.E. Fayed and L. Otten, 1997, p. 345-363) ("Fayed"), (d) claim 5 was rejected as obvious over Joo in view of Hofmann and Fayed and further in view of Freytag, et al., US 6,074,456 ("Freytag"), and (e) claim 8 was rejected as obvious over Joo in view of Hofmann and Fayed and further in view of McClelland, et al., US 6,352,573 ("McClelland").

This response is timely filed, as it is accompanied by a petition for automatic extension of time to file in the third month, and the requisite petition fee.

By the foregoing, claims 1-9 and 11-18 are amended. Reconsideration and allowance of the present application based on the following remarks are respectfully requested.

The issues raised in the outstanding action are addressed below in the order in which they appear in the action.

Claim Rejections Under 35 U.S.C. §§ 102 and 103

Claims 1-18 have been rejected under 35 U.S.C. § 103(a) as being obvious over Joo in view of Hoffman and Fayed together or in further view of Freytag or McClelland. These rejections are respectfully traversed; reconsideration is requested.

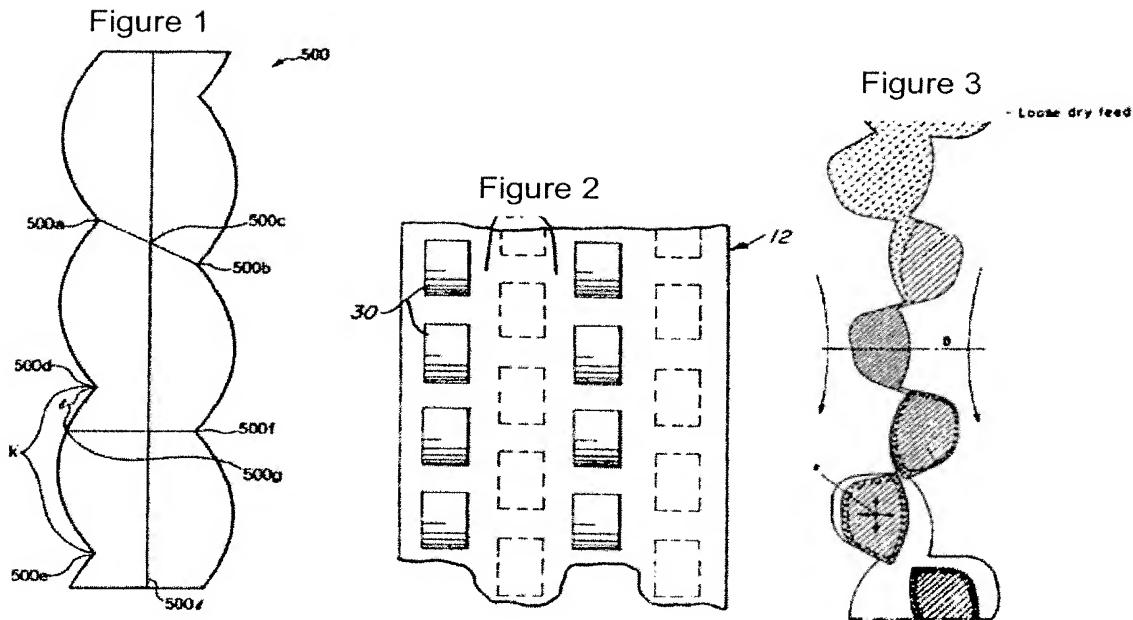
Independent claims 1 and 9 recite a method for manufacturing molten iron including, among other steps, roll pressing reduced material through at least one pair of roller presses to produce a continuous compacted material having grooves formed on pressed surfaces. The grooves are non-aligned to produce compacted material

as recited in claims 1 and 9 and as shown, for example, in Figure 1 below. In claim 1, the compacted material is formed such that acute and obtuse angles are formed between a center line formed along a length of a cross section that is cut along a lengthwise direction perpendicular to an axial direction of the roller presses and connecting lines that connect grooves closest to each other across the cross sectional area. See, for example, Figure 1, below. Claim 9 recites a groove of a second surface is positioned between two adjacent grooves of a first surface. See, for example, Figure 1, below. Dependent claims 2-8 and 10-18 recite additional features of the method.

Joo discloses an apparatus and method for manufacturing molten pig iron with fine iron ore in multiple fluidized beds. Joo further discloses a briquetting device, which forms reduced iron briquettes. Joo fails to disclose forming compacted material in the shape recited in the pending claims.

Hoffmann merely discloses an apparatus for forming briquettes, as shown in Figure 2, below. Hoffmann fails to disclose a method for manufacturing molten iron ore or compacted material in the shape recited in the pending claims. *Compare*, for example, Figure 1 and Figure 2, below. Although the action cites Figure 4 of Hoffmann, this drawing figure is a profile view of the sheet and not representative of the actual shape of the briquettes or briquette sheet. In Hoffmann, the briquettes on opposite sides of the sheet are not overlapping. See Figure 2, below. Therefore, the “grooves” on one surface are not spaced between the grooves of the second surface.

Fayed disclosed general roll-pressing techniques, including briquetting. Fayed discloses briquettes, as shown in Figure 3, below. However, Fayed also fails to disclose compacted material in the shape recited in the pending claims. The briquettes of Fayed do not have non-aligned grooves, as recited in the pending claims. *Compare* Figure 1 and Figure 3, below.



Joo, Hoffmann, and Fayed fail to teach the shape of the compacted material as recited in the pending claims; instead all the references teach briquettes. The compacted material of the present application is not a briquette. Briquettes are formed when “rows of identical pockets are machined into the working surface and the rollers are timed such that the pocket halves exactly match.” Fayed at 345. Furthermore, each briquette is surrounded by flashing or web. *Id.* During briquetting, “the gap between the rollers approaches zero.” *Id.* at 347. In Hoffmann, the briquettes, as shown in Figure 2, above, are surrounded by flashing (labeled as 31). In contrast, the compacted material of the present application does not have any flashing, as shown in Figure 1, above. Further, the gap between the rollers does not approach zero. See, for example, Figure 3 of the present application. Therefore, the combined references fail to teach the shape of the compacted material as recited in the pending claims. In addition, the actions fails to provide a rationale to modify the briquettes of Hoffmann and Fayed to form the shape of the compacted material of the present invention.

Similarly, McClellan and Freytag teach briquetting and fail to teach the shape of the compacted material recited in the pending claims. Therefore, McClellan and

Freytag also fail to provide the motivation to alter the shape of the briquettes of Hoffmann and Fayed.

In addition, Joo, Hoffman, and Fayed fail to teach or suggest the advantages associated with the shape of the compacted material. For example, briquettes (similar to those in Hoffmann and Fayed), in the third comparative example, broke along the grooves and split lengthwise, as shown in Table 1 and p. 22, lines 14-17 of the application. In contrast, the compacted material did not split or break before entering the crusher, and additionally demonstrated improved productivity and minimal powder generation. The compacted material of the present application can be supplied continuously and unbroken to the crusher, a feature not contemplated by any of the references. The references fail to teach or suggest the advantages associated with the shape of the compacted material.

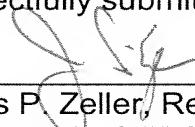
Conclusion

In view of the foregoing, it is believed that the pending application is in condition for allowance, and such action is solicited.

Should the examiner wish to discuss the foregoing or any matter of form in an effort to advance this application toward allowance, he is urged to telephone the undersigned at the indicated number.

November 7, 2008

Respectfully submitted,

By 

James P. Zeller, Reg. No. 28,491
MARSHALL, GERSTEIN & BORUN LLP
6300 Sears Tower
233 South Wacker Drive
Chicago, Illinois 60606-6357
(312) 474-6300
Attorney for Applicant